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ABSTRACT

This paper reviews research literature pertaining to the pain and anxiety associated with pediatric cancer and the use of hypnosis as an adjunct treatment. It is noted that pain and anxiety are most often associated with the procedural treatment of cancer, and that the literature suggests that both pain and anxiety are multi-faceted constructs. This review focuses on the pain and anxiety associated with treatment of the disease (bone-marrow aspirations, lumbar punctures, and chemotherapy), rather than the disease itself. The general results of the literature review suggest that pain and anxiety are significant aspects of unique pediatric cancer conditions, and that hypnosis can be effective in helping to alleviate the distress associated with cancer treatment. Limitations of the present research are considered; it is noted that assessment of cancer-related pediatric distress is difficult because only a small number of instruments are available for measuring distress and because the assessment process must take into account the developmental stage and coping styles of the child. Hypnosis is viewed as a behavioral technique that can help the child distort, displace, or transform the perception of pain, and self-hypnosis is viewed as a way of empowering the child which has both medical and non-medical benefits. Recommendations are made for future research, both in the area of pain assessment and in the field of hypnosis for children. (NB)

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HYPNOSIS AS AN ADJUNCT TREATMENT FOR DISTRESS ASSOCIATED WITH PEDIATRIC CANCER PROCEDURES

by

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HYPNOSIS AS AN ADJUNCT TREATMENT FOR DISTRESS ASSOCIATED WITH PEDIATRIC CANCER PROCEDURES

A Doctoral Research Paper

Presented to

the Faculty of Rosemead School of Psychology

Biola University

In Partial Fulfillment

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Doctor of Psychology

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by

Jerre Lee White

May, 1994

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ABSTRACT

HYPNOSIS AS AN ADJUNCT TREATMENT FOR DISTRESS ASSOCIATED WITH PEDIATRIC CANCER PROCEDURES

by

Jerre Lee White

Research literature pertaining to the pain and anxiety associated with pediatric cancer and the use of hypnosis as an adjunct treatment is reviewed. Pain and anxiety are most often associated with procedural treatment of cancer, and the literature suggests that both are multi-faceted constructs. Hypnosis appears to be an effective adjunct treatment in reducing the distress which is experienced by the majority of children with cancer. Limitations of present research are considered, and recommendations for future research are proposed.

TABLE OF CONTENTS

PAGE

ACKNOWLEDGMENTS v

DOCTORAL RESEARCH PAPER

Introduction. 1

Definitions and Descriptions 2

Purpose of the Paper. 4

Contextual Issues. 4

Assessment Issues 4

Developmental Issues 7

Coping Issues 9

Methodological Limitations 11

Pediatric Cancer-Related Pain and Anxiety. 15

Distinctives of Pediatric Cancer. 15

Incidence and Etiology of Pain and Anxiety 17

Hypnosis as an Adjunct Cancer Treatment. 20

Hypnosis and Children 20

Invasive Procedures 22

Chemotherapy 27

Self-Hypnosis 30

Summary and Conclusions. 33

REFERENCES 36

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HYPNOSIS AS AN ADJUNCT TREATMENT FOR DISTRESS ASSOCIATED WITH PEDIATRIC CANCER PROCEDURES

Introduction

The course of treatment for a pediatric cancer patient is a difficult one. Kuttner, Bowman, and Teasdale (1988) compared it to riding on a roller coaster in the dark. Children and their parents could not disembark. While there would be relatively smooth periods of little or no stress, such as remission, there would also be alternate periods of intense stress, including relapses, pain, and noxious side effects from treatment. It was the pain and anxiety of the recurring diagnostic and treatment-related bone marrow aspirations (BMAs), lumbar punctures (LPs), and chemotherapy, however, that were reported to be the most aversive. Often children with cancer considered BMAs, LPs, and chemotherapy to be worse than the disease itself (Zeltzer, Kellerman, Ellenberg, & Dash, 1980). Pediatric cancer patients experienced significantly more treatment related problems than did peers with other serious diseases (Zeltzer, Kellerman, Ellenberg, & Dash, 1983). While there are many causes of cancer-related distress, current research focuses primarily on distress that is treatment-related.

Most troubling for clinicians is the rapidity with which a number of children of all ages developed conditioned anxiety responses to these procedures and the associated equipment. These reactions included needle-phobia and disruptions in eating and sleeping patterns. Additionally, there was convincing evidence that, over time, most children did not habituate to

these repeated procedures and that anxiety continued. In some cases a classic conditioned (Pavlovian) anticipatory pattern of anxiety was learned (Katz, Kellerman, & Siegel, 1980).

Medications such as general anesthesia or sedation have significant drawbacks for children undergoing recurrent medical procedures. Sedation actually may produce paradoxical effects in young children (Kuttner et al., 1988). This emphasizes the need to develop psychological techniques that promote the child's coping skills during these taxing procedures. If coping skills are not available, anxieties can be so strong as to result in serious difficulties for treatment compliance which, in turn, can be life-threatening (Dolgin, Katz, McGinty, & Siegel, 1985).

While the pain and anxiety associated with cancer are significant problems, there are several options available which help the cancer patients deal with this distress. Previous research with children and adolescents, 6 to 17 years old, has indicated that hypnosis and other psychological techniques are effective in reducing the pain and anxiety associated with cancer (Hilgard & LeBaron, 1982; Jay, Ozolins, & Elliott, 1983; Zeltzer & LeBaron, 1986).

Definitions and Descriptions

An apparent short-coming of the current literature concerning both the distress associated with pediatric cancer and the use of hypnosis as a treatment is that there are no agreed upon definitions or usage of the descriptive terms. While terms such as pain, distress, fear, stress, discomfort, and anxiety are commonly used throughout the literature, they are not used in a consistent manner. This review divides the above variables into two basic categories: (a) psychological issues (anxiety, fear, stress, and emotional distress) which are referred to as anxiety, and (b) physiological issues (pain, discomfort, and

physical distress) which are referred to as pain. The following definitions are used: pain—a physical sensation which is unpleasant or distressing caused by bodily injury, disorder, or invasive medical treatment; and anxiety—a psychological state of apprehension and uneasiness which is precipitated by impending or anticipated ill. Since anxiety and pain are difficult to distinguish in clinical situations, the term distress is used in this review, as it is throughout the literature, to encompass both constructs.

Further, in the literature there is no agreed upon definition of hypnosis. This review employs a definition suggested by Kuttner (1989):

> Hypnosis is an alternative state of awareness, often but not always involving relaxation, in which an individual develops a heightened concentration through which he is able to accept suggestions which allow use of natural mental and physical skills in optimal fashion to solve a problem, improve a performance or maximize some potential. (p. 42)

Hypnosis does not eliminate physiological responses, rather it alters the perceptions and dims awareness of the unwanted pain or anxiety. During a trance, a person changes awareness or perception of the outer world, of the body, and of time. These cognitive perceptions, focused attention, and response to suggestion differentiate hypnosis from basic relaxation (Valente, 1991).

Hypnosis is either guided by a therapist, or, in self-hypnosis, the client guides the trance. Because hypnosis requires the individual's cooperation, some clinicians believe that all hypnosis is self-hypnosis (LaBaw, Holton, Tewell, & Eccles, 1975). Often the term self-hypnosis is used to describe a variety of (a) self-imaging, (b) fantasy thinking, or (c) an actual hypnotic trance induced by one's self. This paper employs this latter meaning of the term self-hypnosis.

Purpose of the Paper

Review of the literature leads to a conclusion similar to that of Stutters and Miaskowski (1992): Pain and anxiety in a child with cancer pose significant challenges. However, little research has been done in the area of pediatric cancer distress to guide clinical assessment and interventions. The purpose of this paper is to present a review of the research from 1980 to 1992 on pediatric cancer pain and anxiety and the role of hypnosis as an adjunct treatment. The review is organized around several concepts that include: (a) contextual issues concerning current research, (b) distinctives of pediatric cancer, and (c) hypnosis as it relates to children and its use as an adjunct treatment. The review concludes with a summary of findings and indications for further study.

Contextual Issues

There are a number of contextual considerations placed on research concerning pediatric cancer distress and treatment. An understanding of the research context is necessary for a correct interpretation of the reviewed studies. Due to issues which are specific to the pediatric population as well as to the subjective nature of distress, such studies are limited in the following ways: (a) lack of standardized assessment instruments, (b) neglect of developmental issues when assessing pain and anxiety, and (c) poorly understood coping phenomena. In addition, the reviewed research appeared to have a few consistent methodological limitations.

Assessment Issues

Studies on the assessment of children with cancer have focused primarily on pain and anxiety as it relates to treatment procedures. These

studies have relied heavily on observation of changes in the children's behavior. Four such studies were found that focus on the development and testing of different behavioral observation rating scales. The Procedure Behavior Rating Scale was developed by Katz et al. (1980) to measure behavioral distress in 115 children undergoing a BMA. The term behavioral distress was used to encompass both pain and anxiety because of the difficulty in distinguishing between them in clinical situations. During four different phases of treatment, 25 behavioral measures were used. Behavioral distress was exhibited by 98% of the children during the actual BMA which suggested a need for a clinical intervention which could reduce the procedure-related distress in children with cancer.

Jay et al. (1983) modified the Procedure Behavior Rating Scale and developed the Observational Scale of Behavioral Distress, which includes continuous measurement of behaviors and weighting of behavioral categories according to intensity. Like the earlier measure, the Observational Scale of Behavioral Distress measures both pain and anxiety. Total distress scores obtained during BMA correlated significantly with parent and child self-report measures of anxiety ($p < .04$ for parents, $p < .02$ for children) and with the children's ratings of their anticipated pain ($p < .0001$) and experienced pain ($p < .02$).

Gauvain-Piquard, Rodary, Rezvani, and Lemerle (1987) designed a new rating observational scale to detect and evaluate cancer pain intensity, anxiety, and depression in children 2 to 6 years of age. This study scored children's behavior at times other than during painful procedures. Results indicated that a positive correlation existed between pain and depression scores. These results suggested that patterns of behavioral distress associated with discrete,

time-limited procedures differ from patterns associated with acute pain from malignancy and its treatment, which can last several days.

Lollar, Smits, and Patterson (1982) developed an instrument to measure pediatric pain perception: the Pediatric Pain Inventory. It is a projective instrument using 24 pictures representing potentially pain-evoking situations (medical, psychosocial, recreational, and activities of daily life). It was administered to 240 children, 4 to 19 years of age. The results suggested that the constructs of intensity and duration of pain are both independent and viable factors in the study of children's pain perception. These findings suggested that there was a tendency that children who ranked their own pain experience as relatively intense, also ranked their mother's pain in the same way. There was a significant difference ($p < .01$) between how children perceived their own pain intensity and how adults perceived children's pain intensity. Adults underestimated the intensity of children's reactions.

In addition to knowing that such assessment measures exist, it is imperative that the clinician also be aware of the limitations of each measure. In general, it appears that children younger than 7 years of age demonstrate more intense and overt distress while older children are less overt (Jay et al., 1983). Therefore, overt behavior does not always constitute a direct expression of the intensity or validity of the patient's experience. Caution must be used if an inference is made regarding the quality of a child's pain solely on the basis of the observed behavior. It is also possible that the absence of overt pain expression does not necessarily mean a subjective lack of pain.

Developmental Issues

Assessment of the psychological factors underlying pain and anxiety is the first and most critical step that must precede interventions to reduce those symptoms. For example, Spross, McGuird, and Schmitt (1990) suggested that assessing developmental level, vocabulary, and motivation undergirds successful treatment of any kind, including hypnosis. Motivation to try hypnosis is evaluated because it can influence outcome.

Children express pain differently according to their ages, developmental levels, and personal experiences (Valente, 1991). While a stoic 12-year-old child may use adult words to express pain, a younger child may talk about an "owie." An 8-year-old with concrete thought processes would not understand abstract references to pain. When ill or in pain, most children regress to behaviors typical of earlier development. Whether school-age children signal their pain and anxiety with words or behavior, they may clearly identify specific measures to decrease their distress.

The levels of understanding and coping with treatment procedures change with the age of the child. Treatment procedures create particular problems for young children of preschool age whose verbal skills are still developing. Kuttner (1989) reports that these acute painful medical procedures are often poorly understood and sometimes perceived as punishment as well as a threat to their body.

No studies were found which directly addressed developmental issues associated with pediatric cancer related to pain and anxiety. However, in a study by Gaffney (1987) the relationship between cognitive development and pain was explored using 680 Irish school children, 5 to 14 years of age. The changes of children's definitions, descriptions, and understanding of causality

of pain were detailed. The findings from this study could be an excellent basis on which to also understand the pediatric cancer patient.

Using the Piagetian theory of cognitive development, Gaffney (1987) reported a strong correlation between cognitive development and children's understanding of pain, specifically, and of health and illness, in general. Children in the preoperational stage (up to 7 years) described pain by focusing on perceptually dominant physical factors. During this prelogical stage, children believed their senses rather than abstracting from experience. Therefore, it was very difficult for them to believe that a needle would make them feel better. They were not likely to make a link between pain and illness nor between pain and cure.

Children in the concrete operational stage (8 to 10 years) began to understand the relationship between pain, other symptoms, and disease, but did not understand the causation of pain. They understood that aversive procedures were necessary. Physical analogies were successfully used to describe pain, which demonstrated a developing awareness of the psychological concomitants of pain (change of mood).

Finally, children in the formal operational stage (11 to 14 years) gave definitions of pain that included both a physical and psychological component and viewed pain more actively, defining it as something that had to be dealt with stoically. While it may not always be accurate, children at this age had a capacity for coherent and sophisticated understanding of the complex interactions of physiological mechanisms in health and disease.

Irrespective of developmental level, McGrath and Craig (1989) reported that children remained relatively poorly informed about the nature of their distress, its significance for them, and what they could do to cope with it.

Clinicians were often equally poor judges of the children's level of cognitive development. They tended to overestimate the sophistication of young children and underestimate older children.

Anxiety can also be understood within the Piagetian theoretical framework. It is probable that children ages 7 and above have a more logical and realistic understanding of medical procedures, which can help them to function in an anxiety-alleviating manner. This may account for a reported dramatic drop in distress levels of children over the age of 7 (Katz et al., 1980). In addition, Jay et al. (1983) reported that younger children exhibited consistently higher levels of distress than older children. Such findings suggested a cognitive developmental factor operating in relation to children's anxiety.

Children's hypnotic abilities seem also to progress in the same developmental sequence as other cognitive abilities. Krueger (1987) reported that hypnotic abilities developed from concrete, magical mental processing of external referents to more abstract and logical processing that included internal referents. In order to understand how a child is experiencing pain and anxiety, it is important to understand how these developmental issues and stages affect the pain perception.

Coping Issues

Only two studies were located which dealt with coping styles of children with cancer. Zeltzer and LeBaron (1986) reported two general coping styles which are used by children. The first is referred to as a sensory information approach in which a child actively attempted to increase sensitized awareness, vigilant focus, or information seeking. The second is referred to as a distraction technique approach in which a child actively

attempted to repress, minimize, or avoid information. Both approaches have been reported to be successful in reducing anxiety and pain in children during medical procedures.

Smith, Ackerson, and Blotcky (1989) assessed the coping style of 42 cancer patients, 6 to 18 years of age, who had experienced at least four BMAs or LPs. Behavioral distress, coping style, fear, pain, and anxiety were assessed by five subjective and objective measures. Their findings suggested that different types of pain management strategies may be needed for children at different stages in the diagnosis of cancer and that the degree of past experience with invasive medical procedures may be a more important factor than preferred coping style.

Patterson and Ware (1988) presented eight current approaches used by health care professionals to help children cope with medical procedures. The approaches in the following areas are taught to the child: (a) Procedural information—providing specific information about the treatment, (b) Sensory information—providing specific information about the physical sensations that are likely to be experienced, (c) Relaxation training—teaching how to relax specific muscle groups of the body, (d) Breathing exercises—teaching how to take slow deep breaths during procedure, (e) Distraction—teaching how to shift point of focus to things other than procedure, (f) Positive self-talk—teaching statements to say during procedure, (g) Emotive imagery—teaching to visualize positive and distracting images, and (h) Hypnosis—combining deep relaxation, deep breathing and shift of focus, along with possible procedural and sensory information, positive self-talk, and emotive imagery. These techniques may be presented through play

therapy, modeling, rehearsal, contingency management, and parent preparation.

While hypnosis has been reported to reduce children's pain and anxiety (Hilgard & LeBaron, 1982; Jay et al., 1983; Zeltzer & LeBaron, 1986), and is a combination of many known coping skills, many clinical settings are not utilizing this coping approach due to lack of trained personnel and time constraints (Patterson & Ware, 1988). Relatively little is known about coping skills in children with cancer. It is evident, though, that an efficient utilization of such skills could be of significant value for the child.

Children are at a distinct disadvantage in understanding their diagnosis of cancer or of the process through which the disease takes them. Clinicians must take this into consideration when a procedure or treatment is planned for the patient. Similarly, researchers must also take a child's limited understanding into consideration when an experiment is designed. Current research appears to reflect the assessment, development, and coping skills limitations which were discussed. In addition, other general trends and issues were found throughout the reviewed literature.

Meeting the specific needs of the pediatric cancer population is a challenging task. The above contextual issues must be addressed in order to (a) diagnosis, treat, and intervene in an efficient manner, and (b) understand the literature. Therefore, in addition to the above contextual considerations, there are several methodological limitations specific to the current literature.

Methodological Limitations

Critique of the research on pediatric distress and on hypnosis raises a number of concerns, both of conceptual and methodological natures. It is possible that these problems may be attributable to difficulties that are

inherent in studying two relatively subjective and intangible constructs. In addition, there are built-in limitations for research inherent with this topic; not the least of these are the complex ethical issues surrounding experimentation with children and the possible withholding of effective treatment. There are also methodological issues that need clarification.

The samples in the reviewed studies initially appeared to be inadequate as there was seldom randomized selection from the general population. However, within the ethical constraints governing these studies and with the necessity of using subjects who were not selected, but became involved due to their illness, these samples actually were quite adequate. The findings of these studies did not necessitate an ability to generalize the findings to the general population, rather they successfully appeared to be generalizable to their target population: pediatric cancer patients. Random assignment to treatment conditions was commonly used.

Most of these studies incorporated a control group in the experimental design (e.g., Cotanch, Hockenberry, & Herman, 1985; Hockenberry-Eaton & Cotanch, 1989; Katz, Kellerman, & Ellenberg, 1987; Kuttner, 1989; Spross et al., 1990; Wall & Womack, 1989; Zeltzer & LeBaron, 1986; Zeltzer, Dolgin, LeBaron, & LeBaron, 1991). Again, ethical issues arose as to the advisability of having a waiting list control group. However, a common weakness in the studies was that most designs compared groups receiving hypnosis to groups who did not (e.g., Cotanch et al., 1985; Hockenberry-Eaton & Cotanch, 1989; Kuttner, 1989; Spross et al., 1990; Zeltzer & LeBaron, 1986; Zeltzer et al., 1991); but not to groups who received other noninvasive variables such as support, encouragement, relaxation, and cognitive restructuring. It is possible that a number of unaccounted for confounding variables affected the outcomes of

these studies. Two studies had treatment groups which used other behavioral interventions (Katz et al., 1987; Wall & Womack, 1989). However, neither study included a true control group, making it impossible to eliminate the possibility that other confounding variables might have been responsible for the apparent improvement in both hypnosis and non-hypnosis groups.

An apparent problem with this group of studies is the measures which were used in the experiments. The majority of these studies relied upon self-report measures for assessing both pain and anxiety (e.g., Kaufman, Tarnowski, & Olson, 1989; Kuttner, 1989; Spross et al., 1990; Wall & Womack, 1989; Zeltzer & LeBaron, 1986; Zeltzer et al., 1983). Traditionally, self-report measures have been considered to have low validity. It is interesting to note, however, that in these specific pediatric cases, where children may be limited in using other measures and is often acutely aware of their experienced distress, self-report measures may be the most appropriate ones to use.

As previously mentioned, neither pain, anxiety, nor hypnosis has an agreed upon definition. This leads to a correlated problem of locating an instrument which measures the desired constructs: pain and anxiety. There also was no consistency of use of the same measures throughout the different studies. This raises the question of whether or not the same constructs are being manipulated and studied. For example, measures designed to assess anxiety, self-esteem, physical well-being, locus of control, and behavioral distress were all utilized with the same intent for measuring pain and anxiety (e.g., Cotanch et al., 1985; Ellenberg, Kellerman, Dash, Higgins, & Zeltzer, 1980; Hilgard & LeBaron, 1982; Hockenberry-Eaton & Cotanch, 1989; Katz et al., 1987; Kaufman et al., 1989; Kellerman et al., 1983; Kuttner, 1989; Spross et al.,

1990; Wall & Womack, 1989; Zeltzer & LeBaron, 1986; Zeltzer et al., 1983). It is likely that a number of different, albeit related, constructs besides distress were tested. Despite the use of different measures and the fact that self-report measures were relied upon, the results from the studies appear to have a high degree of consistency. This may imply surprisingly robust results confirming the efficacy of hypnosis.

The procedures which were used throughout the studies appear to be appropriate. In general, an A-B design was utilized with data taken before and after the hypnotic intervention (e.g., Ellenberg et al., 1980; Kaufman et al., 1989; Kellerman, Zeltzer, Ellenberg, & Dash, 1983; Zeltzer & LeBaron, 1986; Zeltzer et al., 1991). In a few studies, due to ethical constraints against delaying treatment, data were taken only after the intervention had occurred (e.g., Hockenberry-Eaton & Cotanch, 1989; Katz et al., 1987; Spross et al., 1990). While this is not traditionally acceptable experimentation, it was necessary in these instances. Again, the positive results of hypnosis were replicated throughout the studies, implying that hypnosis can be an effective intervention.

On the whole, inferential statistics were used in the analysis of data. While some of the studies limited use of statistics to percentages and means (e.g., Dolgin et al., 1985; Ellenberg et al., 1980; Hilgard & LeBaron, 1982), the balance of the studies reported comparisons using analysis of variance and t-tests (e.g., Cotanch et al., 1985; Hockenberry-Eaton & Cotanch, 1989; Katz et al., 1987; Kellerman et al., 1983; Kuttner, 1989; Spross et al., 1990; Wall & Womack, 1989; Zeltzer & LeBaron, 1986; Zeltzer et al., 1991; Zeltzer et al., 1983). The use of inferential statistics and subsequent comparisons between

studies will help increase the robustness of generalizations to the population of pediatric cancer patients.

The validity of the findings of the current literature appears to be quite solid. The potential threats to the validity of these findings, when seen within the unique case of pediatric cancer, do not create a significant problem. It appears that valid data and conclusions can be obtained when the population to which the findings will be generalized, that of the pediatric cancer population, are taken into consideration. In order to understand the scope of the pediatric cancer condition, additional information on the specific distinctives of pediatric cancer and on its incidence and etiology will be given.

Pediatric Cancer-Related Pain and Anxiety

An enormous amount of effort and money has been dedicated to cancer research. Over the past decades the amount of new information gained from research has improved both the diagnosis and treatment of cancer, which in turn, has led to increased survival rates (Hammond, 1985). These improvements have been noticed in the general cancer population, adult and children alike. However, a vast amount of that research has been specific to adults and does not apply to pediatric conditions. The bank of knowledge regarding cancer cannot, in whole, be applied to the pediatric patient because children with cancer not only have different kinds of cancer, they react differently to treatment, and need different modes of support.

Distinctives of Pediatric Cancer

According to Hammond (1985), the currently acceptable mode of caring for children with cancer is with a multidisciplinary team of specialists including pediatric surgeons, radiation therapists, pathologists, nurses,

pharmacists, oncologists, and mental-health workers. The management of pediatric cancer patients, including diagnosis, treatment, and supportive care, is accomplished by the coordination of the many involved disciplines. Hammond noted that success rates are continuing to improve as survival increases. This is shown by comparing survival rates during the 1940s when under 25% of pediatric cancer patients survived 2 years, to statistics generated in 1985 which shows 60% of all children with cancer (who were involved in studies since 1972) were surviving after 5 to 10 years.

Hammond (1985) listed a number of important distinctions concerning the cancers of children. Childhood tumors are generally deep-seated, not superficial nor generally visible. Additionally, there is no practical way to screen large populations of children. Therefore, detection of cancer in a child, particularly in the early stages, is accidental. Despite the fact that most pediatric cancers are diagnosed at a relatively advanced stage, at least 50% of the cancers of children are potentially curable.

Miser and Miser (1989) have reported that the treatment of cancer pain in children requires in-depth knowledge of both the management of children and the manifestations of pediatric cancer. It is necessary to understand normal child development and behavior, age-appropriate verbal and behavioral manifestations of pain, and a knowledge of the tools currently available for quantitatively assessing pediatric pain. As noted previously, commonly recognized patterns of pain in children with cancer differ markedly from those seen in adult cancer patients. This is due to the fact that the kinds of malignancies commonly seen in children are entirely different from those seen in adults. In all, pediatric cancer has many distinctives

which set it apart from the general cancer population. It is necessary to use this information as a basis for assessment and treatment planning.

Incidence and Etiology of Pain and Anxiety

Miser, Dothage, Wesley, and Miser (1987) reported that a child with cancer may experience pain from several etiologies. Pain may be caused directly by the malignancy itself (bone, bone marrow, and/or soft tissue invasion), procedural pain (infection, post-operative state), incidental pain (trauma), and treatment-related pain (BMA, LP, chemotherapy). The latter, treatment-related pain, accounts for 66% of the pain reported by hospitalized patients and 80% of the pain reported by outpatients.

Only three studies were found that addressed the prevalence and nature of pain in pediatric patients with cancer. Cornaglia, Massimo, and Haupt (1984) conducted a retrospective chart review of 910 children with cancer who had been treated over a 10 year period. Findings from this study revealed that 57% of the children reported having pain of moderate to severe intensity as documented in their medical records.

In a study by Miser, McCalla, Dothage, Wesley, and Miser (1987) the incidence and nature of pain was assessed in 92 children presenting with newly diagnosed malignancies. Pain was measured by composite score using a 100 mm visual analogue scale. The study found that pain had persisted for a median of 74 days. Results suggested that pain is an important symptom of cancer in children and may be present for an extended period of time before the cancer is diagnosed. Nearly 33% of these patients reported their pain intensity as moderate to severe. However, this study indicated that pain, as a presenting symptom in children, usually responds rapidly to medical therapy and persists only briefly after the initiation of treatment, and these results

may not necessarily be representative of a general pediatric cancer population because subjects were selected whose malignancy carried a poor prognosis.

Miser et al. (1987) conducted another study that examined the incidence and etiology of cancer pain in children. Of the 139 pediatric cancer patients in the study, approximately 50% of the hospitalized patients and 25% of the outpatients were experiencing pain at time of assessment. Again, the visual analogue scale was used to measure pain. Therapy-related pain predominated in both in-patient and out-patient groups. Tumor-related pain accounted for only 33% of the pain reported by in-patients and less than 20% of the pain reported by out-patients.

These investigations indicate that pain is a part of the pediatric cancer experience. While there are a number of causes of pain, the vast majority of cancer patients experienced intractable pain mainly from the treatment they received.

Painful medical procedures are administered during the course of both diagnosis and treatment of the pediatric cancer patient. This in turn exacerbates the emotional and physical distress inherent in the disease itself. Pediatric cancer patients encounter painful medical procedures on a routine basis. Therefore, it is common that extreme anticipatory anxiety is exhibited by these children prior to and during the procedures.

The anxiety which is produced by anticipation of these procedures can be so severe that patients may report symptoms such as nausea, vomiting, skin rashes, and insomnia days before the actual procedures occur (Jay et al., 1983). During invasive procedures such as bone marrow aspirations, children in anticipation of the procedure often exhibit negative behavioral reactions (kicking, screaming, and other resistances) which make the procedures very

difficult to perform. Such reactions even may result in the child being taken from the treatment room.

Only one study was found that addressed the prevalence of anxiety in pediatric cancer patients. Katz et al. (1980) studied 115 children with cancer, 6 to 18 years of age, who were randomly selected from oncology patients undergoing BMAs. A behavior rating scale was used to measure anxiety. The results indicated that anxiety was widely prevalent in the sample, and no pattern of habituation was detected. The results suggested that younger children emitted a greater variety of anxious behaviors over a longer period of time than older children ($p < .001$). Girls displayed higher levels of anxiety than did boys across all ages ($p < .02$), and expressed it with comfort-seeking, as opposed to uncooperative behaviors. Clinically, this study indicated that it is not uncommon for children to become nauseated, agitated, or otherwise upset before a medical procedure. For example, some patients became anxious and vomited as they approached the clinic building on the day of an anticipated BMA.

Anxiety is a psychological reaction to the anticipation of pain. In this case, patients often experience anxiety knowing they will receive a medical procedure. It is necessary to acknowledge and work with the anxiety, as well as the pain, of patients, as treatment may be complicated if either is not controlled.

Efficient and successful care for the child with cancer must take into account the unique distinctives which set pediatrics apart from other cancer populations. With these distinctives in mind, it is then appropriate to seek out treatments which are need specific. Hypnosis appears to be such a treatment.

Hypnosis as an Adjunct Cancer Treatment

Health care providers have continued to explore how best to aid pediatric cancer patients who are experiencing pain and anxiety associated with cancer treatment procedures. Diagnostic and therapeutic procedures, specifically BMAs, LPs and chemotherapy, comprise a large part of the cancer regimen and often, as previously noted, are perceived by the patient as worse than the disease (Zeltzer et al., 1983). Such treatment frequently causes regression in the child, creates developmental delays, and allows the child no control over the situation. Standard methods have been used, with variable success, in an attempt to decrease the pain and anxiety of treatment procedures. Such methods have included parental and care-giver support and administration of sedatives and/or anesthesia during procedures (Hockenberry & Bologna-Vaughan, 1985).

Noninvasive methods are additional or alternative coping strategies for pediatric cancer patients. These methods allow the child to gain control of the situation and actually participate actively in the treatment. Hypnosis is a technique which does not necessitate physical invasion of the body but instead originates externally, is ideally suited for children, and carries minimal risk (McCaffery, 1984).

Hypnosis and Children

Valente (1991) contended that hypnosis is an especially valuable tool in treatment of children. Imagination, eagerness to learn new skills, and lack of cognitive inhibitions allow children to learn hypnosis faster than adults. Children enter fantasy readily with little or no induction. Although children, especially those under the age of 6, may dislike closing their eyes or sleeping, they can quickly imagine their favorite activity or place. Children may move

around, may not wish to relax and can easily enter, leave, and reenter the trance state. Valente noted that unlike behavioral techniques that rely on external rewards, hypnosis emphasizes a child's sense of inner control as a reward for reduced pain and anxiety.

Children become highly suggestible during acute pain and anxiety. The goal of hypnosis is to allow the child to become increasingly involved with an interesting and absorbing imaginative or pleasant internal experience resulting in a partial dissociation from the situation, thereby making the distress more bearable. An informal and adaptive hypnotic style on the part of the therapist allows for incorporating explanations and information regarding the pain context and allows the child to shift flexibly from one cognitive state to another in order to maximize coping during the distressful episodes. The studies of Hilgard and LeBaron (1982), Zeltzer and LeBaron (1986), Kuttner et al. (1988), and Jay et al. (1983), which are reviewed further on, showed hypnosis to be the treatment of choice for reducing pain and anxiety in children.

Morgan and Hilgard (1983) used The Stanford Hypnotic Susceptibility Scale, Form A, and compared 1,232 subjects, ranging in age from 5 to 78 years of age, in order to determine age differences in susceptibility to hypnosis. Their findings confirmed earlier studies (London & Cooper, 1969; Lyles, 1982) and suggested a significant peak of hypnotizability in the age interval of 9-12 years and that children between the ages of 5 and 14 make the best hypnotic subjects. While not as hypnotizable, infants, pre-school children, and older adolescents also had success with hypnotic procedures .

A more recent study (Plotnick, Payne, & O'Grady, 1991) of 42 children, ages 7 to 14, examined correlates of hypnotizability in children. Absorption,

vividness of imagination, fantasy play, and social desirability were assessed with three psychometric measures. Due to the fact that the four concepts in question have considerable overlap, clear distinctions between sub-concepts and their relative contributions to hypnotizability were difficult to ascertain. However, taken together, these concepts were found to account for a significant portion of the variance in the hypnotizability scores ($p < .01$). In general, results indicated that children's attitudes toward hypnosis may have influenced their hypnotic responsiveness.

To date, hypnosis has been used for pediatric pain and distress in many circumstances: (a) injections, (b) headaches, (c) acute injuries, (d) burns and associated therapy, and (e) cancer and associated treatments. The children who utilize hypnosis effectively appear to continue to experience the pain, but do not consider it as bothersome (Krueger, 1987). The literature appears to indicate that children, especially those between the ages of 5 to 14 are highly hypnotizable. Considered in conjunction with the risks of medications, it seems viable to further explore the use of hypnosis for children as a means to alleviate their distress.

Invasive Procedures

Hockenberry and Bologna-Vaughan (1985) conducted a survey of 29 pediatric oncology medical groups to determine what kinds of interventions were used to prepare pediatric cancer patients for invasive procedures, namely BMAs and LPs. Results indicated that of the institutions studied, 70% never had used hypnosis during a BMA or LP, and only 30% had at sometime used hypnosis. Of these same institutions, 83% reported using some kind of noninvasive technique (such as distraction, cognitive restructuring, or relaxation) during treatment. While it appeared that it was common for

behavioral techniques to be used during a BMA or LP treatment, hypnosis was not commonly the treatment of choice.

A number of studies have supported the use of hypnosis for relief of pain and anxiety in pediatric cancer patients during invasive procedures. Four studies, are reviewed which combined both pain and anxiety as variables.

Zeltzer and LeBaron (1986) studied 45 cancer patients, age 6 to 17 years: 27 received BMAs and 22 received LPs. A non-hypnotic control group which used visual distraction, deep breathing, and practice sessions to control fear was compared to a hypnotic group. Pain was measured on a scale of 1-5 both before and after the procedure by the patient and observers. During BMA, pain was reduced to a large extent by hypnosis ($p < .001$), to a smaller, but still significant, extent by nonhypnotic techniques ($p < .01$), and anxiety was reduced only by hypnosis ($p < .001$). During LP, only hypnosis significantly reduced pain ($p < .001$), while anxiety was reduced to a large extent by hypnosis ($p < .001$) and to a smaller extent by nonhypnotic techniques ($p < .05$). BMA pain was rated significantly higher than LP pain. Results of this investigation indicated that hypnosis was consistently more effective in reducing pain and anxiety than was supportive counseling, although nonhypnotic techniques were helpful for some patients. It should be noted, however, that the same therapists treated both groups. Therefore, the possibility exists that subtle demand characteristics may have affected the results.

Kellerman et al. (1983) reported that after hypnosis training 16 adolescents with cancer achieved significant reductions ($p < .02$ to $p < .002$; two-tailed t-test) of pain and anxiety associated with BMAs and LPs before,

during, and immediately after the procedure. The psychological dimensions of anxiety, self-esteem, locus of control, and physical well-being were assessed by four self-report measures. This study demonstrated that pain and discomfort did not spontaneously diminish with repeated procedures. In fact, anticipatory anxiety may have developed and increased over time. Although the results offered encouraging support for the use of hypnosis, the data did not provide answers as to which specific aspects of the intervention were most efficacious. Unfortunately, objective behavioral observations were not included in the study.

Kuttner et al. (1988) treated pain and anxiety simultaneously since anxiety often accompanies pain. Two age groups of children with leukemia, 3 to 6 years of age and 7 to 10 years of age, were randomly assigned to three treatment groups (control, distraction, hypnosis). Distress, pain, and anxiety were assessed by three observational measures; pain and anxiety also were assessed by two self-report measures. The results indicated that the distress of younger children, 3-6 years of age, was best alleviated by hypnotic treatment. The distress of older children was reduced by both distraction and hypnotic techniques. Kuttner et al. reported that the staff for the control group ended up utilizing a distraction technique with the control subjects, thereby turning the control group into a third treatment group. Thus the data from the control group could not validly be used for comparison.

Ellenberg et al. (1980) presented a case history of a 12-year-old girl with chronic leukemia which supported the efficacy of hypnosis. Comparison of the baseline with post-hypnotic reports suggested less acute pain and anxiety during BMA, diminished nausea and vomiting during chemotherapy, and decreased headaches, backaches, and spiking fevers.

Two studies focused solely on how hypnosis affected pain during invasive procedures. Hilgard and LeBaron (1982) obtained data from 24 cancer patients aged 6 to 19 years of age. Pain was measured by the patient and two observers on a scale of 1-10 during a BMA. Using the same patients, quantitative data obtained from a baseline BMA without hypnosis was compared to data from a second BMA with hypnosis. After intervention with hypnosis, 10 of 19 highly hypnotizable patients demonstrated significant reduction in pain after just one hypnotic treatment. Five additional patients achieved relief after a second hypnosis session. Analysis revealed that for children who are 10 years of age and older, observers rated their pain less severe than did the children. Further, these children displayed fewer outward signs of pain than did younger children. This study did not include a control group. Consequently, it is not known if there were confounding variables.

Spross et al. (1990) reported clinical case studies of 24 children, 6-17 years of age, who reported that a BMA was "highly painful." There was a significant reduction ($p < .01$) in self-rated pain when their pain from a baseline BMA was compared with a BMA after one hypnotic preparation session. The children reported that hypnosis reduced the pain of the actual BMA. Spross et al. suggested that both the children and the hypnotist had positive expectations that hypnosis would reduce pain, and this may have influenced a positive outcome.

Both of these studies used only subjective self-report measures. While the results may not be as robust as from other methodology, these results confirm the previous results, continuing to indicate that hypnosis has a positive outcome in decreasing pain in children with cancer.

A large number of articles which discussed the benefits of hypnosis for pain reduction and decreasing symptoms of anticipatory anxiety consistently suggested that hypnosis obtains superior results to those of other psychological interventions. However, not all of the literature is in agreement in this regard. Two studies had findings which were, at least in part, contradictory to the positive outcomes previously reported. Katz et al. (1987) studied 36 children, 6 to 12 years of age, with acute leukemia who were undergoing repeated BMAs. Subjects were randomized to either a hypnosis or play comparison group and received interventions prior to their next three BMA procedures. Anxiety, fear, behavioral distress, subjective pain, rapport between subject and therapist, and response to hypnotism were assessed using six observational and self-report measures.

The results suggested that hypnosis and play, while having had no significant impact on observable behavior, are equally effective in reducing subjective pain and anxiety relating to BMAs. For methodological reasons, the intervention of hypnosis was not performed during an actual BMA. Therefore, this study also suggested that children may not be able to transfer coping behaviors that they were taught during hypnosis sessions to the critical situation in the treatment room and that a transfer could be facilitated by performance of hypnosis techniques during the procedure.

In comparing hypnosis and cognitive strategies, Wall and Womack (1989) found similar non-confirmatory results. Two treatment conditions (hypnotic or cognitive strategies) were formed from 20 pediatric cancer patients, 5 to 18 years of age. Such patients were screened for hypnotizability, grouped by age and randomly assigned. Pre-intervention data were collected by three psychometric measures and one self-report interview regarding pain

and anxiety during a BMA or LP. Following strategy training, data were collected on a second BMA or LP using the same measures. Results indicated that both hypnosis and cognitive strategies were effective in providing pain reduction, but neither technique provided significant anxiety reduction.

These studies present some questions that need to be addressed concerning the efficacy of hypnosis. While their results did not disprove the benefits of hypnosis, they suggest that other behavioral methods may prove to be as effective and that how and where hypnosis is performed may be significant. Further study needs to be done in order to draw any firm conclusions.

Chemotherapy

In addition to invasive BMAs and LPs, cancer patients often receive chemotherapy as a treatment. Chemotherapy-induced nausea and vomiting are among the most distressing side effects that patients with cancer encounter in battling their disease. Drug noncompliance due to severe nausea and vomiting is reported as high as 33% in children and 59% in adolescents. Chemotherapy-related nausea and vomiting is a distressing experience for children and may occur as a direct result of the treatment or may occur as a conditioned response in anticipation of the treatment. In either case, effective and safe use of antiemetics in children has not been established.

While currently there is little published research on the effect of hypnosis as it relates to pediatric chemotherapy, it appears from the studies available that hypnosis may be a promising intervention (Hockenberry & Cotanch, 1985). To date, advances in hypno-therapeutic techniques as antiemetics have been mainly derived from growing clinical experience,

rather than empirical data (Noeker & Petermann, 1990). Only four empirical studies were found. However, all four studies support hypnosis as a means to decrease distress associated with chemotherapy.

Cotanch et al. (1985) randomly assigned 20 pediatric cancer patients, 10-20 years of age, with nausea and vomiting, to either a control group receiving standard preparation or to an experimental group receiving relaxation and self-hypnosis. Children were followed through two consecutive chemotherapy courses with constant dosage. Amount, severity, frequency, and intensity of nausea and vomiting as well as oral fluid intake were measured. Data were obtained from three measures: one to measure actual amounts of vomiting, one psychophysical scale, and one perception of nausea instrument. Results showed that 75% of the children using hypnosis did not vomit at all after chemotherapy while 100% of the control subjects vomited at least once ($p = .05$) after chemotherapy. Results suggested that hypnosis effectively reduced post-chemotherapy nausea and vomiting and that oral intake improved with the use of self-hypnosis intervention.

Zeltzer et al. (1983) evaluated the effectiveness associated with chemotherapy in 12 adolescents with a variety of malignancies who were experiencing problems with nausea and vomiting. Trait anxiety, self-esteem, perception of control over one's health, and illness impact were measured by four psychological instruments. Results indicated that eight patients demonstrated significant reductions in the frequency ($p < .01$) and intensity ($p < .05$) of vomiting and that six of the eight patients also demonstrated a shortened duration of vomiting. Trait anxiety scores were significantly lower at a six month retest following hypnosis intervention ($p < .05$). Significant impact on other measures was not found. These results suggested hypnosis

was efficacious in reducing vomiting when used within the context of a comprehensive clinical approach to the pediatric cancer patient.

While the physiological cause of vomiting during and after chemotherapy is generally understood, there is no such physiological explanation for the occurrence of anticipatory nausea and vomiting. Such anticipatory reactions are likely the result of classical conditioning (Katz, 1982).

Dolgin et al. (1985) interviewed 40 pediatric cancer patients, with a wide range of diagnoses, and their parents concerning nausea and vomiting both before and after chemotherapy. Anticipatory nausea was reported by 28.8% of the sample. Anticipatory vomiting was reported by 20% of the sample. An additional 9% were not currently experiencing anticipatory nausea or vomiting but had in the past. At least 40% of the patients reported experiencing anticipatory nausea and/or vomiting which suggested that this problem affects and contributes to treatment related distress in a large number of pediatric cancer patients.

The results of a study by Zeltzer et al. (1991) suggested that hypnosis was an efficacious intervention in children with cancer to reduce the nausea and vomiting related to chemotherapy. Both anticipatory and concurrent symptoms were measured. Data were obtained from 54 children and adolescents, with cancer, who reported significant chemotherapy-related nausea and/or vomiting during baseline assessment. These subjects were administered two interview instruments: one to obtain data on anticipatory symptoms and the other for post-chemotherapy symptoms.

Results indicated that hypnosis was the single best predictor of change from baseline to intervention. Children in the hypnosis group reported the

greatest reduction of both anticipatory and post-chemotherapy symptoms. The cognitive distraction/relaxation intervention appeared to have a maintenance effect in which symptoms did not get much worse or better. The control group consistently became worse over time. The addition of a controlled design may have increased the significance of these findings.

There is a limited amount of research on the effectiveness of hypnosis in reducing the distress associated with chemotherapy. It appears that both nausea and vomiting, anticipatory as well as concurrent, associated with chemotherapy can be dramatically improved with such an intervention. Replication of these encouraging findings is necessary in order to draw firm conclusions.

Research strongly indicates that hypnosis can be effective in reducing distress from both invasive procedures and chemotherapy. However, inherent in the hypnotic process is a serious limitation in that the child must rely upon a trained hypnotist. The use of self-hypnosis creates the possibility of retaining the positive contribution of hypnosis while eliminating its limitations.

Self-Hypnosis

The use of self-hypnosis might serve a dual role with pediatric cancer patients. In addition to its apparent ability to help reduce the pain and anxiety associated with treatment and diagnosis, it may also be a vehicle toward empowering the child and thereby establish autonomy, increase self-esteem, and maintain an internal locus of control.

From a developmental perspective, childhood is a crucial stage in the life cycle for building self-esteem, establishing autonomy, and orienting oneself to the future (Erikson, 1968). The diagnosis and treatment of cancer

may cause major disruptions in the life cycle, and the development of the child may be altered. Therefore, efforts to maximize the child's potential for physical and psychosocial independence must be made. Limited research has been done which encompasses both pediatric cancer and self-hypnosis.

Cotanch et al. (1985) included self-hypnosis as one of the variables in their study. Results indicated that self-hypnosis effectively reduced post-chemotherapy nausea and vomiting (75% of the children using self-hypnosis did not vomit after chemotherapy, while 100% of the control subjects continued to vomit after chemotherapy).

In an A-B design, Kaufman et al. (1989) evaluated the effectiveness of a multicomponent intervention (self-hypnosis, relaxation, and guided imagery) for reducing chemotherapy associated nausea and vomiting in an 11 year old cancer patient. Measures included (a) self-reported nausea intensity, and (b) parental report of duration of patient's sleep and vomiting frequency. The investigators reported a significant reduction in self-reported nausea intensity and in parent observed vomiting, as well as increase in sleep duration.

Olness (1981) reported her clinical experience with 21 pediatric cancer patients who were diagnosed with a variety of cancers. These patients had been referred by oncologists for self-hypnosis training as they were experiencing unusual difficulties in tolerating procedures and side effects. Olness reported that children between the ages of 5 and 11 years were able to demonstrate substantial skills in pain and nausea control after an average of only two practice sessions. While older patients usually also reported a reduction of anxiety and nausea after two sessions, they required an average of four sessions to acquire useful skills in pain control.

Hockenberry-Eaton and Cotanch (1989) evaluated the effect of self-hypnosis on the perceived self-competence of children who were undergoing treatment for cancer. The study randomly assigned 22 children, 8 to 18 years of age, into an experimental group taught self-hypnosis and a control group given standard care. A measure comprised of six different domains of self-competence was used for data gathered both pre- and post-intervention of self-hypnosis training. In five of six domains of self-competence, scores increased slightly in the hypnosis group and declined for all domains in the control group. However, these findings were not found to be statistically significant. According to the authors, this finding suggested that a learned coping method, such as self-hypnosis, may give the child additional support throughout treatment and promote continued development of self-competence. The lack of statistical significance made this a tentative conclusion.

The early results of studies on self-hypnosis tentatively indicate that it may be an effective treatment. Combined with the fact that survival rates continue to increase, the use of self-hypnosis becomes an even more important element in the treatment program. Self-hypnosis may hold an important key in decreasing children's distress, as well as keeping them responsible for, and in control of, their treatment.

In general, hypnosis appears to be an adjunct treatment that holds great promise. A pediatric cancer patient may be able to decrease the treatment related pain and anxiety without further medication or procedures.

Summary and Conclusions

This review has attempted to assess the pain and anxiety which is associated with pediatric cancer and to assess the use of hypnosis as an adjunct treatment to reduce the distress during cancer treatments. The general results of relevant literature suggest that pain and anxiety are significant aspects of unique pediatric cancer conditions, and that hypnosis can be effective in helping to alleviate the distress associated with cancer treatment.

The current understanding of pediatric cancer pain and anxiety is incomplete. It is understood, though, that the incidence of distress is high and is a major source of concern for many patients, their families, and their multidisciplinary treatment teams. In addition, the cancer of the pediatric patient varies significantly from the general cancer population. The bank of information regarding adult cancer is not widely applicable to the pediatric population.

Assessment of cancer-related pediatric distress is difficult, with only a small number of instruments available. To be effective, the assessment process must take into consideration the developmental stage and coping styles of the child. Despite the magnitude and intensity of the problem, relatively little attention has been directed to its study. What research that has been done has focused primarily on the distress associated with such medical procedures as BMA, LP, and chemotherapy.

Hypnosis is a behavioral technique that appears to be effective when used in a comprehensive plan to manage cancer pain and anxiety from BMA, LP, and the associated nausea and vomiting from chemotherapy. Hypnosis does not eliminate physiological responses to pain, but it can help a child to distort, displace, or transform the perception of pain. Many factors influence

a child's unique response to cancer pain, anxiety, diagnostic procedures, and to hypnosis itself.

Hypnosis requires a careful assessment of the child's pain, developmental state, and coping styles. It can be used as a solo, non-pharmacological treatment or be used with other noninvasive treatments. Hypnosis can also be a supplement to, and at times replace, the pharmacological pain treatment. When hypnosis supplements pain management, children may require fewer pain relieving medications. In addition, the use of self-hypnosis may also include an empowering of the child which has both medical and non-medical benefits.

Considering the gravity of the issues and the lack of study, the field is wide open for future investigation. Suggested areas of further study on pain include (a) assessment tools which need further development and refinement because currently they are limited, and evidence of the instruments' validity and reliability would increase the confidence in using them accurately and efficiently; (b) relationships between developmental issues and pain and anxiety; and (c) relationship between coping styles of children and pain and distress.

Suggested areas of further research on hypnosis include additional studies to test (a) the efficacy of hypnosis for children under 7 or 8 years of age, who unfortunately have been overlooked and are most in need of intervention; (b) induced versus self-hypnosis methods in order to determine which are most helpful for symptom relief for children at various stages of development, stages of the disease, and various treatments; and (c) specific patient, therapist, and environmental variables in order to determine the therapeutic agent of change. Increased sample size, increased statistical

power, delineation of secondary variables, and long term follow-up would facilitate these studies.

REFERENCES

Cornaglia, C., Massimo, L., & Haupt, R. (1984). Incidence of pain in children with neoplastic diseases. Pain, 2, 28.

Cotanch, P., Hockenberry, M., & Herman, S. (1985). Self-hypnosis as antiemetic therapy in children receiving chemotherapy. Oncology Nursing Forum, 12(4), 41-46.

Dolgin, M. J., Katz, E. R., McGinty, K., & Siegel, S. E. (1985). Anticipatory nausea and vomiting in pediatric cancer patients. Pediatrics, 75, 547-552.

Ellenberg, L., Kellerman, J., Dash, J., Higgins, G., & Zeltzer, L. (1980). Use of hypnosis for multiple symptoms in an adolescent girl with leukemia. Journal of Adolescent Health Care, 1, 132-136.

Erikson, E. H. (1968). Identity, youth and crisis. New York: Norton.

Gaffney, A. D. (1987). Children's understanding of the causality of pain. Pain, 29, 91-104.

Gauvain-Piquard, A., Rodary, C., Rezvani, A., & Lemerle, J. (1987). Pain in children ages 2-6 years: A new observational rating scale elaborated in a pediatric oncology unit--a preliminary report. Pain, 31, 177-188.

Hammond, G. D. (1985). Multidisciplinary clinical investigation of the cancers of children. Cancer, 55, 1215-1225.

Hilgard, J. R., & LeBaron, S. (1982). Relief of anxiety and pain in children and adolescents with cancer: Quantitative measures and clinical observations. International Journal of Clinical and Experimental Hypnosis, 4, 417-442.

Hockenberry, M. J., & Bologna-Vaughan, S. (1985). Preparation for intrusive procedures using noninvasive techniques in children with cancer: State of the art vs. new trends. Cancer Nursing, 8(2), 97-102.

Hockenberry, M. J., & Cotanch, P. H. (1985). Hypnosis as adjunct antiemetic therapy in childhood cancer. Nursing Clinics of North America, 20, 105-107.

Hockenberry-Eaton, M. J., & Cotanch, P. H. (1989). Evaluation of a child's perceived self-competence during treatment for cancer. Journal of Pediatric Oncology Nurses, 6(3), 55-62.

Jay, S. M., Ozolins, M., & Elliott, C. H. (1983). Assessment of children's distress during painful medical procedures. Health Psychology, 2, 133-147.

Katz, E. R., (1982). Conditioned aversion to chemotherapy. Psychosomatics, 23, 650-651.

Katz, E. R., Kellerman, J., & Ellenberg, L. (1987). Hypnosis in the reduction of acute pain and distress in children with cancer. Journal of Pediatric Psychology, 112, 379-394.

Katz, E. R., Kellerman, J., & Siegel, S. E. (1980). Behavioral distress in children with cancer undergoing medical procedures: Developmental considerations. Journal of Consulting and Clinical Psychology, 48, 356-365.

Kaufman, K. L., Tarnowski, K. J., & Olson, R. (1989). Self-regulation treatment to reduce the aversiveness of cancer chemotherapy. Journal of Adolescent Health Care, 20, 323- 327.

Kellerman, J., Zeltzer, L., Ellenberg, L., & Dash, J. (1983). Adolescents with cancer: Hypnosis for the reduction of the acute pain and anxiety associated with medical procedures. Journal of Adolescent Health Care, 4, 85-90.

Krueger, L. C. (1987). Pediatric pain and imagery. Journal of Child and Adolescent Psychotherapy, 4, 32-41.

Kuttner, L. (1989). Management of young children's acute pain and anxiety during invasive medical procedures. Pediatrician, 16, 39-44.

Kuttner, L., Bowman, M., & Teasdale, M. (1988). Psychological treatment of distress, pain, and anxiety for young children with cancer. Journal of Developmental and Behavioral Pediatrics, 9, 374-381.

LaBaw, W., Holton, C., Tewell, K., & Eccles, D. (1975). The use of self-hypnosis by children with cancer. The American Journal of Clinical Hypnosis, 17, 233-238.

Lollar, J.L., Smits, S. J., & Patterson, D. L. (1982). Assessment of pediatric pain: An empirical perspective. Journal of Pediatric Psychology, 7, 267-277.

London, P., & Cooper, L. (1969). Norms of hypnotic susceptibility in children. Developmental Psychology, 1, 113-124.

Lyles, J. (1982). Efficacy of relaxation training and guided imagery in reducing the aversiveness of cancer chemotherapy. Journal of Consulting and Clinical Psychology, 50, 509-524.

McCaffery, M. (1984). Pain assessment and relief in children with cancer. Journal of Associated Pediatric Oncology Nurses, 1, 9.

McGrath, P. J., & Craig, K. D. (1989). Developmental and psychological factors in children's pain. Pediatric Clinics of North America, 36, 823-836.

Miser, A. W., Dothage, J. A., Wesley, M., & Miser, J. S. (1987). The prevalence of pain in a pediatric and young adult cancer population. Pain, 29, 73-83.

Miser, A. W., McCalla, J., Dothage, J. A., Wesley, M., & Miser, J. S. (1987). Pain as a presenting symptom in children and young adults with newly diagnosed malignancy. Pain, 29, 85-90.

Miser, A. W., & Miser, J. S. (1989). The treatment of cancer pain in children. Pediatric Clinics of North America, 36, 979-999.

Morgan, A. H., & Hilgard, E. R. (1983). Age differences in susceptibility to hypnosis. The International Journal of Clinical and Experimental Hypnosis, 21, 78-85.

Noeker, M., & Petermann, F. (1990). Treatment related anxieties in children and adolescents with cancer. Anxiety Research, 3, 101-111.

Olness, K. (1981). Imagery (self-hypnosis) as adjunct therapy in childhood cancer. The American Journal of Pediatric Hematology/Oncology, 3, 313-321.

Patterson, K. L., & Ware, L. L. (1988). Coping skills for children undergoing painful medical procedures. Issues in Comprehensive Pediatric Nursing, 11, 113-143.

Plotnick, A. B., Payne, P. A., & O'Grady, J. (1991). The Stanford Hypnotic Clinical Scale for Children--Revised: An evaluation. Contemporary Hypnosis, 8, 33-40.

Smith, K. E., Ackerson, J. D., & Blotcky, A. D. (1989). Reducing distress during invasive medical procedures: Relating behavioral interventions to preferred coping style in pediatric cancer patients. Journal of Pediatric Psychology, 14, 405-419.

Spross, J. A., McGuird, D. B., & Schmitt, R. M. (1990). Oncology Nursing Society position paper on cancer pain. Oncology Nursing Forum, 17, 751-560.

Stutters, K. A., & Miaskowski, C. (1992). The problem of pain in children with cancer: A research review. Oncology Nursing Forum, 19, 465-471.

Valente, S. M. (1991). Using hypnosis with children for pain management. Oncology Nursing Forum, 18, 699-704.

Wall, V. J., & Womack, W. (1989). Hypnotic versus active cognitive strategies for alleviation of procedural distress in pediatric oncology patients. American Journal of Clinical Hypnosis, 31, 181-191.

Zeltzer, L. K., Dolgin, M. J., LeBaron, S., & LeBaron, C. (1991). A randomized, controlled study of behavioral intervention for chemotherapy distress in children with cancer. Pediatrics, 88, 34-42.

Zeltzer, L., Kellerman, J., Ellenberg, L., & Dash, J. (1980). Psychological effects of illness in adolescence: Impact of illness in adolescents–crucial issues and coping styles. Journal of Pediatriacs, 97, 132-138.

Zeltzer, L., Kellerman, J., Ellenberg, L., & Dash, J. (1983). Hypnosis for reduction of vomiting associated with chemotherapy and disease in adolescents with cancer. Journal of Adolescent Health Care, 4, 77-84.

Zeltzer, L., & LeBaron, S. (1986). The hypnotic treatment of children in pain. Advances in Developmental and Behavioral Pediatrics, 7, 197-234.

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